

**REMARKS**

Claims 1-22 were pending in this application.

Claims 21 and 22 have been allowed.

Claims 1, 2, 4, 5, 7-9, 11, 14-16, and 18 have been rejected.

Claims 3, 6, 10, 12, 13, 17, 19, and 20 have been objected to.

No claims have been amended.

Claims 1-22 remain pending in this application.

Reconsideration and full allowance of Claims 1-22 are respectfully requested.

**I. ALLOWABLE CLAIMS**

The Applicants thank the Examiner for the indication that Claims 21 and 22 are allowable. These claims have not been amended and therefore remain in condition for allowance.

The Applicants also thank the Examiner for the indication that Claims 3, 6, 10, 12, 13, 17, 19, and 20 would be allowable if rewritten in independent form to incorporate the elements of their respective base claims and any intervening claims. Because the Applicants believe that the remaining claims in this application are allowable, the Applicants have not rewritten Claims 3, 6, 10, 12, 13, 17, 19, and 20 in independent form.

**II. REJECTION UNDER 35 U.S.C. § 102**

The Office Action rejects Claims 1, 2, 4, 5, 7-9, 11, 14-16, and 18 under 35 U.S.C.

§ 102(a) as being anticipated by Wanlu et al., “Applying Multiresolution Analysis for Processing of Hydraulic Pump Fault Signal” (“*Wanlu*”). This rejection is respectfully traversed.

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. (*MPEP* § 2131; *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990)). Anticipation is only shown where each and every limitation of the claimed invention is found in a single prior art reference. (*MPEP* § 2131; *In re Donohue*, 766 F.2d 531, 534, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985)).

Claims 1, 8, and 15 recite that a signal is decomposed into a “plurality of resolution levels,” the resolution levels are grouped into a “plurality of groups,” and one or more defect indicators are identified “using the groups.”

The Office Action asserts that *Wanlu* discloses “grouping decomposition layers into multiple groups in the sum of  $A_j f(t)$  for low frequency approximation and in the sum of  $D_j f(t)$  for high frequency” and then “identifying defect indicators using the multiple groups.” (*Office Action*, Page 5, Third paragraph). The Office Action cites two portions of *Wanlu* as supporting these assertions. (*Office Action*, Page 5, Third paragraph). However, the cited portions of *Wanlu* do not anticipate decomposing a signal into a “plurality of resolution levels,” grouping the “plurality of resolution levels” into a “plurality of groups,” and identifying “one or more defect indicators ... using the [plurality of] groups” as recited in Claims 1, 8, and 15.

The first portion of *Wanlu* (page 2, right column, lines 19-37) simply recites various “decomposition formulas.” (Page 2, Right column, Lines 19-21). In other words, this portion of

*Wanlu* identifies the formulas that are used to decompose a signal into multiple decomposition layers. For example, these are the formulas that are presumably used to generate the decomposition layers “d1”-“d3” and “a3” in Figure 1 of *Wanlu* and the decomposition layers “d1”-“d10” and “a10” in Figure 2 of *Wanlu*. These formulas have absolutely nothing to do with grouping “resolution levels” into multiple “groups” and then identifying one or more defect indicators “using the groups” as recited in Claims 1, 8, and 15. In fact, these formulas are based on a particular reference by Stephane Mallat (reference [4]). A copy of this reference is included with this RESPONSE to show that these formulas have absolutely nothing to do with grouping “resolution levels” into multiple “groups” and then identifying one or more defect indicators “using the groups” as recited in Claims 1, 8, and 15.

The second portion of *Wanlu* (page 4, left column, second paragraph) simply recites a process where a signal  $s$  is decomposed into decomposition layers “d1”-“d3” and “a3” (presumably using the equations discussed above). The decomposition layers are then processed using “threshold noise elimination,” and the processed decomposition layers are then used to form a reconstructed signal  $s1$ . (*Page 4, Left column, Second paragraph*). As noted earlier in *Wanlu*, the “threshold noise elimination” is performed to smooth the decomposition layers and eliminate noise. (*Page 3, Right column, Last paragraph*). As a result, this portion of *Wanlu* simply recites that decomposition layers “d1”-“d3” and “a3” are smoothed and then used to reconstruct a signal  $s1$ . Nothing in this portion of *Wanlu* indicates that “resolution levels” are grouped into multiple “groups,” where the multiple groups are used to identify one or more defect indicators as recited in Claims 1, 8, and 15.

*Wanlu* does recite that the reconstructed signal *s1* is decomposed again into decomposition layers “d1”-“d10” and “a10,” and one or more of the new decomposition layers identify faults in a hydraulic pump being monitored. (*Page 4, Left column, Last paragraph – Page 5, Second paragraph*). In effect, *Wanlu* discloses two different sets of decomposition layers. The first set is formed by decomposing the signal *s*, and the second set is formed by decomposing the signal *s1*. In other words, these sets are formed by decomposing different signals, not the same signal. Also, the first set is only used to produce the signal *s1*, and one or more decomposition layers in the second set are used to identify a defect in a hydraulic pump. *Wanlu* does not use multiple sets to identify any defect indicators. As a result, *Wanlu* lacks any mention of decomposing a signal into a “plurality of resolution levels” and then grouping those resolution levels into a “plurality of groups” as recited in Claims 1, 8, and 15. *Wanlu* also lacks any mention of identifying one or more defect indicators “using the [plurality of] groups” as recited in Claims 1, 8, and 15.

For these reasons, *Wanlu* fails to anticipate the Applicants’ invention as recited in Claims 1, 8, and 15 (and their dependent claims). Accordingly, the Applicants respectfully request withdrawal of the § 102 rejection and full allowance of Claims 1, 2, 4, 5, 7-9, 11, 14-16, and 18.

### III. CONCLUSION

The Applicants respectfully assert that all pending claims in this application are in condition for allowance and respectfully request full allowance of the claims.

**SUMMARY**

If any issues arise, or if the Examiner has any suggestions for expediting allowance of this application, the Applicants respectfully invite the Examiner to contact the undersigned at the telephone number indicated below or at *wmunck@davismunck.com*.

The Commissioner is hereby authorized to charge any additional fees connected with this communication (including any extension of time fees) or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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